

REPRODUCTIVE Quarterly

NEWSLETTER OF THE REPRODUCTIVE HEALTH PROGRAM
UTAH DEPARTMENT OF HEALTH

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Terbutaline and Preterm Labor

Linda McKenzie, R.N., A.D.

Myth: Terbutaline can stop preterm labor and prevent premature delivery.

Fact: Terbutaline is a beta-adrenergic agonist that has been used over the past few decades for the treatment of premature labor. Women in premature labor have been given terbutaline by mouth, by injection, and by continuous infusion. Many studies have been conducted to determine whether terbutaline effectively stops premature contractions and prevents premature delivery.

Study results and later meta-analyses, clearly show that oral terbutaline therapy is not effective in the treatment of preterm labor. Injection of terbutaline into the subcutaneous tissue may delay delivery for up to 48 hours. Some health care professionals feel that this provides an important window of time for administering corticosteroids to stimulate lung maturity in the unborn child. It also allows time for transportation of the mother to a tertiary care center where pediatric specialists can care for the newborn child. Long-term continuous infusion of low dose terbutaline was popular between 1987 and 1993. In 1995, the American College of Obstetricians and Gynecologists issued the following statement regarding this mode of administration, "At present, there is no evidence to support the efficacy of this costly and complicated approach."¹

As with any therapy, one must weigh the potential benefits against the risks associated with terbutaline use. The most common complications of terbutaline therapy are increased glucose intolerance and pulmonary edema in the mother. The risk for pulmonary edema increases when other drugs, such as magnesium sulfate, are given with terbutaline.¹

References:

1. American College of Obstetricians and Gynecologists. (June 1995). Preterm Labor (Technical Bulletin Number 206). Washington, DC: Author. p. 6.
2. Cunningham, et al. (1997). William's Obstetrics (20th ed.). Stamford, CT: Appleton and Lange.

(Linda McKenzie is a Perinatal Case Manager with the WeeCare Program at the Utah Department of Health. For additional information, she can be contacted at 801-538-9968.)



Anna's Surfing Secrets

... Don't worry. You can't break the internet. . .

Kristy Sorensen

Surfing the web can be like visiting a foreign country without a translator because the internet has its own language. By developing an understanding of the lingo, surfing can become more enjoyable and a lot less frustrating. Here is a list of some of the most frequently used internet terms and their definitions.

Address or URL – The identifier used to access an internet site or to send email.

Bookmark/Favorite – A marker of a URL that you place in your internet browser software for easy access at a later date. Netscape Navigator refers to these markers as bookmarks, while Internet Explorer calls them favorites. Bookmarks/favorites are typically placed on sites that you visit often. To create a bookmark in Netscape Navigator, go to the site you want to bookmark and click on the button called bookmark, then select the add bookmark option. To create a favorite in Internet Explorer, go to the site you would like to add, click on favorites, and choose add a favorite. Later, when you want to visit that site again simply click on the bookmark or favorites menu and select the desired site. If you use another web browser, this feature may have a different name.

Cookies – Files that certain sites place on your hard drive generally without your knowledge. These files contain information about you related to that site, for example, your user name and password.

Domain – The last three letters of the URL used to identify what kind of organization created the site. The most popular domain, .com, stands for commercial. Educational institutions use .edu, .gov is used for some government sites, and .org refers to non-profit organization sites.

Downloading – This is the process of placing software from another computer onto your computer by using a browser or a

file-transfer protocol (FTP) program that finds and retrieves the software online then copies it to your computer. Placing software on another computer from yours is called **uploading**.

HTML (Hypertext Markup Language) – The language used to create web pages. It is a series of commands that explains how the page should be displayed by specifying the size, style, color, and use of animation for text, graphics, and links.

Hypertext – This is what allows you to travel all around the web visiting sites through connections that bring all the things together that make up a web page.

Links – Links are the connectors between hypertext pages; just clicking on them allows you to go to new and exciting places on the net.

Network – The connection of two or more computers for the purpose of sharing resources.

If you still have a few questions about the language of the web, visit the help site offered by your favorite internet guide. Now that you know some of the lingo, visiting the internet won't seem so foreign; so, let's start surfing!

Reference:

Yahoo! How-To. (2000). A Tutorial for Web Surfers (On-line), <http://howto.yahoo.com>

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Frequency of Induced Deliveries in Utah

Nan Streeter, M.S., R.N.

Induced deliveries have increased in the United States as well as in Utah. Nationally, induced deliveries rose from 9% in 1989 to 18.4% in 1997, a two-fold increase.¹ Utah follows the national trend, although at an even faster pace. In 1998, 29.9% of all Utah births were induced compared to 15.5% in 1989.

Induction of delivery is medically indicated in certain conditions, such as hypertension and postdate pregnancies. According to the American College of Obstetricians and Gynecologists, induction should only be performed when the benefits outweigh those of continuing the pregnancy.² Because the procedure is associated with complications, induction should not be performed for convenience.

The Utah Department of Health analyzed birth certificate data for hospital and freestanding birthing center deliveries during 1989 -1998.³ Induction of delivery was defined as a birth in which "induction of labor" was noted on the birth certificate; it did not include stimulation or augmentation of labor.

Characteristics of mothers who were more likely to have an induced delivery included:

- Older
- Married
- More educational attainment
- White and non-Hispanic

Of mothers who had an induced delivery, women between the ages of 20-34 years had the highest percentage of induced deliveries, with the lowest incidence occurring among women under the ages of 20. Induced delivery was 3.2% higher for women who were married compared to those who were not. Women with a high school diploma and beyond had higher percentages of induced deliveries than those who had not yet completed high school. The incidence of induced deliveries was highest among White women by 4.9 to 7.7% compared to all other racial groups; non-Hispanic women had a 6.3% higher percentage of induced deliveries than Hispanic women.

Trends over time show that inductions associated with risk factors and those associated with no noted risk factor have increased at comparable rates. While ACOG recommends that the decision to induce be based on benefits outweighing potential complications of the procedure, Utah data indicate that inductions associated with no apparent medical risk are increasing at a steady rate. Almost 21% of women with no noted risk factor had induced deliveries.

ACOG guidelines do not generally recommend induction before 39 weeks of gestation. Utah data show that 30% of all inductions in the state occurred before 39 weeks of gestation. It might be assumed that these inductions were related to medical necessity. However, analyzing the distribution of inductions by gestational age and medical risk revealed that, regardless of gestational age, the greater percentage of inductions were among women with no noted medical risk. Of inductions that occurred before 39 weeks of gestation, 78% were among women with no noted risk factor, while only 22% were among women with one or more risk factor/s.

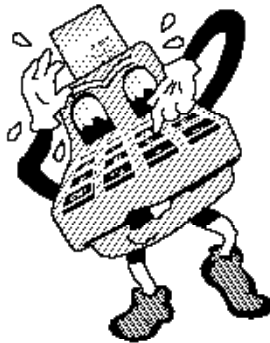
Almost one third of all hospital or birthing center deliveries in Utah are induced, with a substantial number occurring among women with no noted risk factor. The implications of this increasing practice are not known at this time, however, more detailed analysis is necessary to determine if this practice is negatively impacting health outcomes for Utah mothers and babies.

References:

1. Curtin, S.C., Park, M.M. (December 2, 1999). Trends in the Attendant, Place, and Timing of Births, and in the Use of Obstetric Interventions: United States, 1989-97. National Vital Statistics Reports (Vol. 47, No. 27). U.S. Dept. of Health and Human Services, Centers for Disease Control and Prevention.

2. American College of Obstetricians and Gynecologists. (December 1995). Induction of Labor (Technical Bulletin Number 217). Washington, DC: Author.
3. All Utah data was obtained from: Center for Health Data, Office of Vital Records and Statistics, Utah Department of Health. (1989-1998). Utah's Vital Statistics Births and Deaths. (Utah Dept. of Health). Salt Lake City, UT: Author.

(Nan Streeter, M.S., R.N. is the director of the Maternal and Child Health Bureau at the Utah Department of Health. For more information on this topic, she may be contacted at 801-538-6869.)



Small Area Analysis and Perinatal Outcomes

Lois M. Haggard, Ph.D. and Brian Paoli, Information Analyst

Small area analysis is a tool that can help inform community health planning by providing public health information specific for each community or small area. Analysis of perinatal outcomes by small area can help assess the effectiveness of health care delivery and guide policy makers in targeting and planning appropriate interventions. This is particularly useful for heavily populated urban areas where analyses at the health district or county level can fail to identify smaller areas of substantial need.

In Utah, 61 small areas with an average 1997 population size of 33,500 persons (range 15,000 to 62,500) were identified. Population size, political boundaries of cities and towns, and socioeconomic similarity were the chief criteria used to create the areas. Zip codes and counties were used individually or combined to create the 61 geographic areas. Zip codes were used because they are the smallest commonly used geographic units that are also identified in most public health data sources such as birth certificates and hospital discharge data. The 61 areas vary widely in surface area, with the smallest area consisting of a few square miles in an urban county, and the largest area encompassing four large frontier counties. The most populous urban health district, Salt Lake City/County Health District, contains 23 small areas.

Rates are fundamental tools of health data analyses and are calculated by dividing the number of events such as births, deaths, or illness episodes, by the population at risk at some point in time or over some time period. Rates for small areas are often based on small numbers of events, causing them to be unstable. That is, they often vary from year to year even when the underlying risk for an event remains unchanged. For some areas several years of data may need to be combined to obtain a

sufficient number of events for a stable estimate of rates. This is particularly true for events that occur very rarely such as infant death or low birth weight. Rare events also present confidentiality problems since it may be easy to identify individuals. This can also occur when the data is divided and analyzed by categories such as age or race/ethnicity.

In the report "Community Health Status: Selected Measures of Health Status by Small Area in Utah," several perinatal outcome measures are calculated for small areas using three years of birth and death certificate data from 1994 through 1996.¹ Here one can compare the small areas across the state and identify areas at higher risk for adverse outcomes. Variation in rates among areas may indicate variation in health care access at the community level. Observation of unusually high rates for perinatal conditions should prompt an examination of the factors contributing to the high rate. Because of chance variation in rates it is important to take the statistical precision or stability of the rate into account when forming an interpretation of the rate.

Epidemiologists and statisticians often use a confidence interval to help interpret rates that are subject to random variation, or chance. A confidence interval derives from sampling theory but can also be used in cases where the whole population is captured. It can be thought of as a measure of the amount that the rate can be expected to vary from one time period to the next due to chance alone. For example, from the report cited above, the average annual infant mortality rate in Logan for 1994-1996 was estimated to be 4.0 deaths per 1000 live births, with a 95% confidence interval from 2.7 to 6.0 deaths. One may interpret this information as follows: "Our estimate of the rate that best depicts the infant mortality experience in Logan in this time period is 4 deaths per 1,000 live births. However, we must also acknowledge that, based on the information available, and with 95% certainty, Logan's infant mortality experience may also be depicted by rates ranging from 2.7 to 6.0 deaths per 1,000 live births." The confidence interval may also be used to compare rates. For instance, if the overall Utah rate falls outside of Logan's confidence interval, Logan is considered to be statistically different from the state of Utah as a whole.

Mapping the rates is a useful way to display the information from small areas and it helps to illustrate how adjacent areas compare on various measures. Maps also help illustrate, spatially, the distribution of outcomes within the state. Currently methods are being developed and refined in order to monitor the changes in rates of perinatal outcomes and other health measures in small areas. It is hoped that these new methods will provide timely information about important trends and could serve as a useful component in strategies to improve the public's health.

The Utah State Department of Health plans to conduct more small area studies and will make these data available to researchers. Department of Health web sites, such as MatCHIIM, plan to incorporate small area analyses as a part of their research options and small area analysis will also be a component of future web based research tools such as IBIS-PH (Internet Based Information System for Public Health). Many

of the reports using Small Areas are currently available at <http://hlunix.hl.state.ut.us/action2000/reports.html>

We hope that the reporting and use of small area information will promote improved collection of geographic data and adoption of uniform standards for such data. That collection and those standards should apply not only to health data, but also to demographic, survey, economic, social welfare, and other data that could be used to improve our understanding of Utah communities and the people that make up those communities.

For the interested reader, the following journal articles discuss small area analysis in greater detail:

O'Campo, P. (Nov 1999). Innovative methods for monitoring perinatal health outcomes in cities and in smaller geographic areas. American Journal of Public Health, 89(11). 1667-1672.

Kulldorff, M. (March 1999). Geographic information systems (GIS) and public health: Some statistical issues. Journal of Public Health Management and Practice. 100-106.

Cressie, N. (1995). Bayesian smoothing of rates in small geographic areas. Journal of Regional Science, 35(4), 659-673.

Cressie, N. (Supplement 1993). Regional mapping of incidence rates using spatial bayesian models. Medical Care, 31(5), YS60-YS65.

Malec, D. & Sedransk, J. (Supplement 1993). Bayesian predictive inference for units with small sample sizes: The case of binary random variables. Medical Care, 31(5), YS66-YS70.

Reference:

1. Bureau of Surveillance and Analysis. (1998). Community Health Status: Selected Measures of Health Status by Small Area in Utah. Salt Lake City, UT: Utah Department of Health. Available: <http://hlunix.hl.state.ut.us/action2000/reports.html>

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Comings and Goings:

Change is inevitable but it's always sad to see folks leave. We're sorry to announce that Michael Fitzgerald, DDS, in Family Health Services Division at the Utah Department of Health and long-time dental health champion, has resigned as Director of Division Resources. He will be missed.

Also missed at the Utah Department of Health is Kathleen Glasheen, Director of the Maternal and Child Health Bureau

who recently retired. We wish her well and are envious of her retirement.

Finally, Katherine Howard, Case Manager in the Utah Department of Health WeeCare Program retired and departed for country living in Idaho. She's missed but we're sure she's enjoying her new home on the range.

On a happier note, Nan Streeter, formerly the Reproductive Health Program Manager at the Utah Department of Health, has been promoted and is now the Director of the Maternal and Child Health Bureau, taking Kathleen Glasheen's place. She can be reached at 801-538-6869.

So – who replaced Nan Streeter as Program Manager of the Reproductive Health Program? Say congratulations to Lois Bloebaum, formerly the Coordinator of the Perinatal Mortality Review Program. Her number is 801-538-9970.

OK but who's filling Lois' old position? That position is still open. If you have questions related to that program, contact Lois at 801-538-9970.

The Reproductive Health Program is pleased to announce a new member of our tribe, Christy Nielson, R.N. She is replacing Katherine Howard as a case manager in the Utah Department of Health's WeeCare Program. Christy may be reached at 801-538-9456. Welcome aboard Christy!!

Did you get all of that? There will be a quiz on it in the next newsletter. Seriously, if you have questions related to any of the above programs, call the number listed.

JSI Conference – In Salt Lake City!!!!

It's short notice, but if you haven't heard about it, the JSI Annual Reproductive Health Update will be held at the Salt Lake Hilton May 8th and 9th with a pre-conference session on Sunday, May 7th. The cost for all three days, including a \$25.00 late fee, for Title X participants is \$150 and for non-Title X participants, \$230. Topics include: Buddy Can You Spare a Dime? – Effective Grant Writing, Date Rape Drugs, Introduction to Smoking Cessation, Telephone Triage, Family Planning: Putting Males in the Picture, Resistant and Persistent Vaginitis, Coding and Reimbursement for Women's Health, Helping Clients Deal with Difficult News, and many more. CEUs are available. For more information, contact JSI Research & Training Institute at: Telephone 303-293-2405, Fax 303-293-2813, or E-mail denver@jsi.com. See you there!!

Racial* Disparities In Perinatal Outcomes

Debby Carapezza, C.F.N.P.



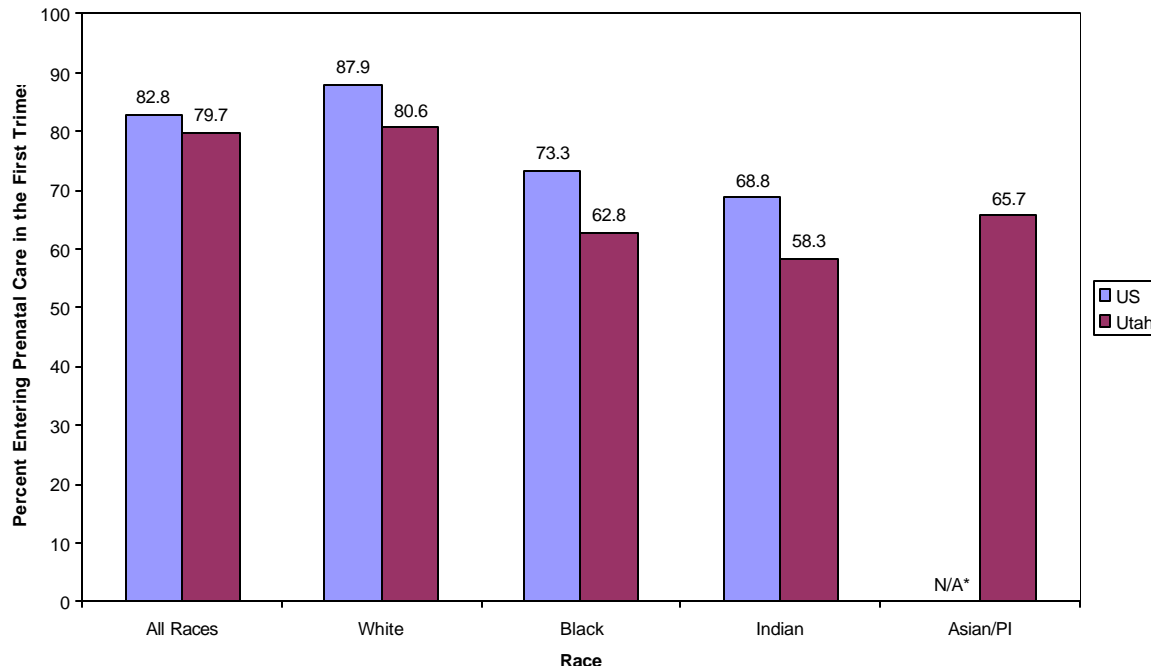
The Healthy People 2000 health status objectives established goals for various health status indicators. Several of these goals targeted perinatal outcomes.¹ While progress has been made toward achieving some of these goals, attainment of others has not yet been accomplished. One of the areas of greatest concern is the disparity among racial groups in perinatal outcomes. In the United States, disparities exist between racial groups in entry into prenatal care, low birth weight births, and infant mortality, among others. Do such disparities exist between racial groups in Utah? Unfortunately, the answer is yes.

Entry into Prenatal Care

In Utah from 1997 to 1998 the percentage of women entering prenatal care in the first trimester dropped from 82.9% to 79.7%. A portion of this decrease may be due to an increase in the number of birth certificates failing to indicate the month the mother entered prenatal care resulting in these women being categorized as entry "Not Stated". As a result, early entrants into care may be under-reported. However, the trend in early entry into prenatal care in Utah has been downward. Over a six-year period, from 1994 through 1998, the percent of Utah women entering prenatal in the first trimester has decreased from 85.5% in 1994 to 79.7% in 1998, the latest year for which data are available.²

TABLE 1^{3, 4}

Percent of Women Entering Prenatal Care in the First Trimester by Race
Utah Compared to the United States for 1998



In 1998, Utah lagged behind the United States in first trimester entry into prenatal care for women of all races as well as for White, Black and American Indian women (Table 1). For all races the percent of women entering prenatal care in the first trimester was 82.8% for the United States but only 79.7% for Utah. While the percentage of White women entering prenatal care in the first trimester was higher than that for all races, the percentage of White Utah women was still lower than that for White women in the U.S. – 87.9% for the U.S. and

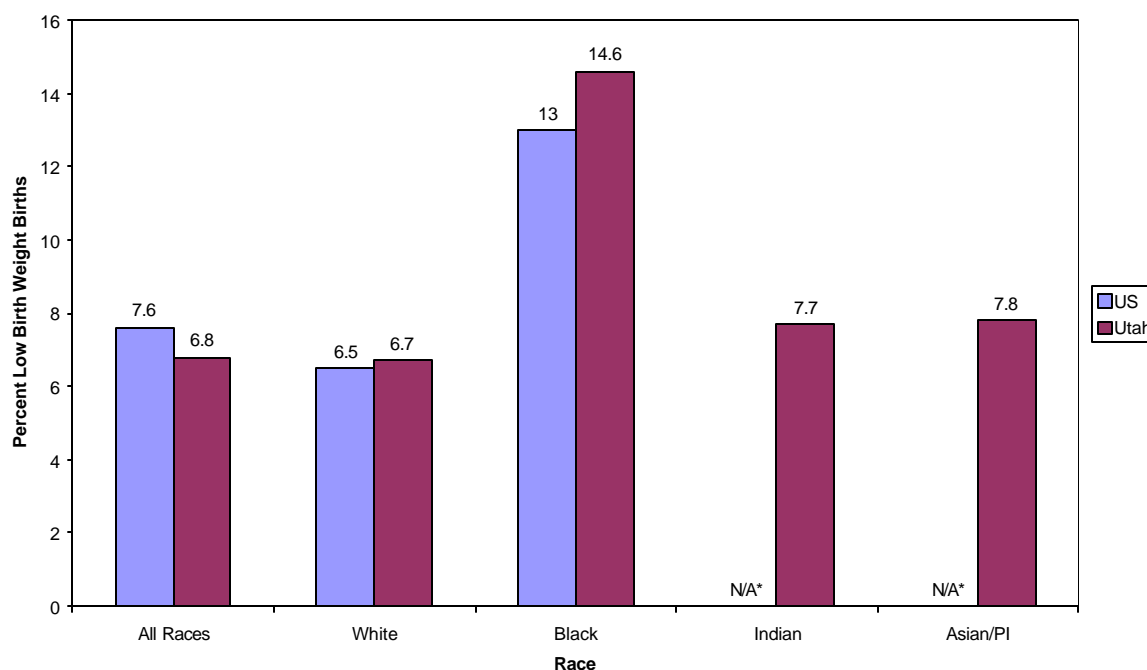
80.9% for Utah. A similar lag between the U.S. entry percentages and Utah's exists for Blacks – U.S. 73.3% and Utah 62.8% - and for American Indians - 68.8% for the U.S. to 58.3% in Utah.^{3,4} Due to differences in categorization of Asian women, national data is not available to compare Utah and U.S. percentages.

In addition to Utah lagging behind the United States on all of the above categories, Table 1 also indicates that, at both the national and state levels, there are disparities between racial groups in the percent of women entering prenatal care in the first trimester. At the national level, the percent of White women entering prenatal care in the first trimester is 87.9% compared to 73.3% for Blacks, and 68.8% for American Indians. In Utah, 80.6% of White women entered prenatal care in the first trimester while only 62.8% of Black women, 58.3% of American Indian women, and 65.7% of Asian/Pacific Islander women did so.^{3,4}

Low Birth Weight Births

The percent of low birth weight births (birth weight less than 2,500 grams) for all races in Utah for 1998 was lower than percent for U.S. all races - 6.8% to 7.6% respectively (Table 2). However, among White births, Utah was slightly higher than the U.S. percent with the former being 6.7% and the latter, 6.5%. An even greater difference between the U.S. and Utah percentages exists in Black low birth weight births at 13% to 14.6% respectively. National data is not available to compare low birth weight births for American Indian and Asian/Pacific Islanders.

TABLE 2^{3, 4}
Percent of Low Birth Weight Births for 1998
Utah Compared to the United States

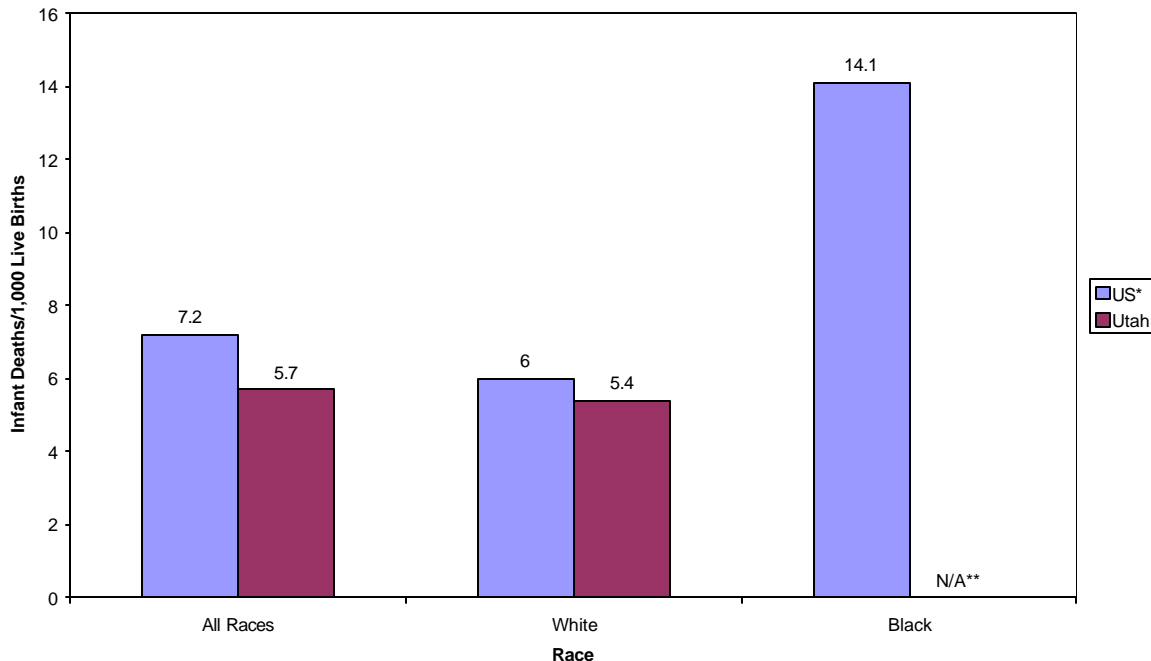


As Table 2 demonstrates, a marked disparity exists between the percentage of Black and White low birth weight births at both the national and state level. In the U.S., 6.5% of White births resulted in a low birth weight infant while 13% of Black births were low birth weight.^{3,4} In Utah, a similar disparity exists with 6.7% of White births being classified as low birth weight while 14.8% of Black births were so classified. While the disparity between the percentage of White low birth weight births to American Indian and Asian/Pacific Islander low birth weight births is not as great, both of these groups have poorer outcomes in this category than Whites or all races combined.³

Infant Mortality

Table 3 illustrates that at the national level, in 1998 there was a marked disparity between infant mortality rates (IMR) for Black infants (14.1) compared to that of all races (7.2) and White infants (6).⁵ Utah's infant mortality rates for both all races (5.7) and Whites (5.4) were less than the national rates for those categories². Due to the small number of infant deaths among minority populations in Utah, it is not possible to calculate a meaningful IMR for Black, American Indian, or Asian/Pacific Islanders.

TABLE 3^{2, 5}
Infant Mortality Rates by Race for 1998
Utah Compared to the United States



Conclusions

Clearly, for racial minorities, both nationally and in Utah, key perinatal outcomes are poorer than those of the general population. To remedy this situation, barriers to prenatal care need to be identified and, where possible, eliminated. Surveys of minority prenatal clients and leaders in the various minority communities may be of assistance in identifying these barriers and targeting outreach efforts. Care settings need to be welcoming to all segments of the population and cultural health care beliefs need to be recognized and respected. Prenatal clients who are members of a racial minority need careful risk assessment to determine factors that may place them at high risk. Appropriate referrals for needed services should be made and effort expended to keep these clients in pre- and postnatal care. It will only be through a focused, on-going, concerted effort that improvement will be seen in perinatal outcomes for minority women and their infants.

*The racial groups included in this article are White, Black, American Indian, and Asian/Pacific Islander. The Hispanic category is considered to be an ethnic, not racial group. Perinatal outcomes and possible disparities between Hispanic and non-Hispanic populations will be covered in a future newsletter article.

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1. Department of Health and Human Services. (1991). Healthy People 2000 National Health Promotion and Disease Prevention Objectives (DHEW publication no. PHS91-50212). Hyattsville, MD.
2. Center for Health Data, Office of Vital Records and Statistics. (1999). Utah's Vital Statistics Births and Deaths 1998 (Utah Department of Health, Technical Report No. 208). Salt Lake City, UT: Author.
3. Maternal and Child Health Internet Query Module: (2000). Salt Lake City, UT: Utah Department of Health.
4. Ventura, S. J., Martin, J. A., Curtin, S. C., Mathews, T. J., Park, M. M. (March 28, 2000). Births: Final Data for 1998. National Vital Statistics Reports (Vol. 48, No. 3). U.S. Dept. of Health and Human Services, Centers for Disease Control and Prevention.
5. National Vital Statistics Reports (Vol. 47, No., 5). U.S. Dept. of Health and Human Services, Centers for Disease Control and Prevention. Available on-line at: <http://www.fedstats.gov/index20.html>

(Debby Carapezza is the nurse consultant for the Reproductive Health Program at the Utah Department of Health. For more information, she can be contacted at 801-538-9946, fax at 801-538-9409, or e-mailed at dcarapez@doh.state.ut.us)

A Bona Fide Excuse To Visit Park City – Sign-Up Now!!

The 2000 Utah Public Health Conference will be held May 10th and 11th at the Yarrow Hotel in Park City. Registration for both days is \$50 for members and \$70 for non-members. Pre-registration deadline is April 28th if you want to avoid a \$15.00 late fee. There is also a pre-conference workshop entitled "Improving Behavioral Health for the Next Generation" on May 9th for an additional \$25 fee. Topics at the sessions on May 10th and 11th include: Preventive Medicine: The Asset Approach; Contraception Update; Pregnancy and Smoking/ETS; How Can Information Systems Support Public Health Programs' Activities: A Case Study of Immunization Registries; and much more. You can get more information, a registration form, or even register on-line at: <http://www.upha.org/upha/html/conferences.html>.